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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,493	03/25/2004	Hans Wettstein	003-123	5735

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CERMAK & KENEALY LLP
515 E. BRADDOCK RD
ALEXANDRIA, VA 22314

EXAMINER	
HANAN, DEVIN J	

ART UNIT	PAPER NUMBER
3745	

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/808,493	WETTSTEIN ET AL.	
	Examiner	Art Unit	
	Devin Hanan	3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-6 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-6 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 25 March 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 9/14/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heppenstall (U.S. Patent 5,741,119) in view of Elston et al. (U.S. Patent 4,743,166).

Heppenstall discloses an axial flow turbomachine comprising a rotor made from a metallic material with a first density (col. 2 line 24), a circumferential groove (col. 1 lines 16-27); and rotor blades (38).

Heppenstall does not disclose intermediate pieces alternately mounted in a circumferential groove where the intermediate pieces comprise a material with a second density lower than the first density.

However, Elston et al. teaches of intermediate pieces (seals 24 are mounted between root portions 34) alternately mounted in a circumferential groove (abs line 2) where the intermediate pieces comprise a material with a second density lower than the first density (col. 2 lines 62-68, other lower density materials, such as those intermetallic alloys and lightweight alloys listed as root attachment materials in the Heppenstall

reference could be used as the intermediate seal pieces 24 to reduce weight) for the purpose of reducing weight and easing mounting problems (col. 1 lines 21-26).

Since Heppenstall and Elston et al. are both from the turbine blade mounting art, the purpose of Elston et al. would have been recognized in the pertinent art of Heppenstall. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the seals of Elston et al. in the turbine blade mounting configuration of Heppenstall for the purpose of reducing weight and easing mounting problems (col. 1 lines 21-26)

Regarding claim 2, Heppenstall discloses the blade root portion can be made of an intermetallic material (col. 2 lines 20-24).

Regarding claim 3, Heppenstall discloses the intermetallic material is an alloy of gamma aluminide alloy (col. 2 lines 20-24).

Regarding claim 5, Heppenstall discloses the material with a second density is a titanium alloy (col. 2 lines 20-24).

Claim 4 is rejected under 35 USC 103(a) as unpatentable over Heppenstall in view of Elston et al. Heppenstall, as modified in the rejection of claim 1-3 above, teaches of an aluminide material used as an intermediate piece except that there is no distinct chemical composition given. It is common practice in the art of intermetallic materials to modify the chemical composition of a material in order to change the properties of a material to suit a particular application of the material. Additionally,

changing the properties of a material could improve properties such as strength, heat resistance, etc.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the gamma aluminide alloy of Heppenstall by changing the chemical composition in order to change the properties of the material as an engineering expedient.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heppenstall in view of Elston et al. as applied to claims 1-5 above, and further in view of Siga et al. (U.S. Patent 5,008,072).

Heppenstall, as modified by Elston et al. disclose the turbomachine is a gas turbine engine having a high pressure compressor with a rotor and all of the above claimed elements, but does not disclose the rotor is made of stainless Cr-Ni steel.

However, Siga et al. teaches of a rotor made of Cr-Ni steel for the purpose of high temperature strength and high toughness (col. 1 lines 64-68).

Since Heppenstall, Elston et al. and Siga et al. are all from the same field of endeavor, turbomachine rotor material, Siga et al. would have been recognized in the pertinent art of Heppenstall and Elston et all. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a rotor of Cr-Ni steel, as taught by Siga et al., with the turbomachine of Heppenstall for the purpose of having a rotor with high temperature strength and high toughness (col. 1 lines 64-68).

Prior Art

The patent to Arkless (U.S. Patent 2,857,134) is cited for its teaching of an intermediate piece between the blades.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devin Hanan whose telephone number is 571-272-6089. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on 571-272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Devin Hanan
Patent Examiner
Art Unit 3745

EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700
8/8/05